

FORDYCE (J.A.)

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ACNE VARIOLIFORMIS HEBRÆ

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A CONTRIBUTION TO THE PATHOLOGY OF ACNE VARIOLIFORMIS HEBRÆ.¹

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AS neither the pathological anatomy nor the ætiology of acne varioliformis have to any extent been investigated, and as some confusion exists regarding the connection of the lesions with the hair follicles or glandular apparatus, I have taken this opportunity to present to the Association the results of some work done by myself, which I offer as a small contribution to the pathology of the affection. In 1891, under the title of "*Acne Varioliformis of the extremities*" (JOUR. OF CUTAN. AND GEN. URIN. DIS., April, 1891), the clinical characteristics of an affection were described by Bronson which in many respects corresponded with typical acne varioliformis of the face. As the result of a microscopic examination by myself of papules and papulo-pustules in various stages of development, the conclusion was reached that the disease began as an inflammatory exudation about the coil glands, which later led to a generalized infiltration of the derma, and was followed by a sharply circumscribed degeneration of the affected area in the form of a dark brownish-red slough, followed by a depressed pigmented scar. The eruption disappeared under the use of local antiseptics, but the patient subsequently came under my observation at another dispensary with

¹ Read at the Seventeenth Annual Meeting of the American Dermatological Association September 5, 1893.



a second outbreak of the same character as the first, which again subsided under the application of antiseptic lotions.

The belief was expressed at that time that this case was identical in its clinical appearances, at least, with the better known eruption on the face. As the morbid anatomy of the latter disease was unknown, a positive opinion regarding their pathological identity could not be expressed.

In 1892 Pollitzer described an eruption under the name of "*Hydradenitis Destruens Suppurativa*" (JOUR. CUTAN. AND GEN. URIN. DIS., January, 1892), in which the lesions began as deep-seated nodules which gradually enlarged until they attained the size of a pea. Suppuration followed, and ultimately the crust covering the papule fell, leaving a depressed pigmented scar.

Anatomically, he found the process to begin at the junction of the cutis and sub-cutaneous cellular tissue. In the inflammatory exudation he found disorganized coil glands, which simulated giant cells.

The cells of the coil glands in the neighborhood of the infiltration showed parenchymatous changes, so that he was led to the conclusion that the process began as an affection of the glandular epithelium.

The case described by Dr. Bronson and myself, although presenting such marked similarity both in its clinical and microscopic appearances, was not mentioned by this writer.

An analysis of these cases, together with one reported in 1889 by Giovannini (Giornale Italiano d. Malattie Ven. e della Pelle, 1889, p. 302), the first case of the kind studied microscopically; the cases reported by Barthélemy (Ann. de Dermat. et Syph. 1, 1891) under the title of "*Acnitis*," and two observations of his own form the subject of an elaborate paper by Dubreuilh (Archives de médecine expérimentale, 1, 1893,) entitled "*Des hidrosadénites suppuratives disséminées*."

This writer carefully examined the lesions removed from his own cases, and was able to determine the origin of the process in the region of the sweat glands. He could not give a definite opinion, however, as to whether the first changes occurred in the glandular epithelium, as maintained by Pollitzer, or in the surrounding connective tissue, as my own sections seemed to show.

Dubreuilh also considered the differential diagnosis of this suppurative hydradenitis and acne varioliformis (Hebra), which it so closely resembles in its clinical features, together with "*Acne necrotica*" (Boeck) (Archiv. f. Dermat. u. Syph.,

p. 37, 1889). The latter affection, which Dubreuilh is inclined to consider a distinct disease, cannot be definitely classified because of our imperfect knowledge of its anatomical situation, Boeck's examination in the case reported by himself being limited to the separated necrotic tissue. Of this he gave a minute and careful description, and concluded that the inflammation began about the hair follicles, rapidly extending to the surrounding tissue, and involving them in a destructive process. From the fact that Boeck's case began with the eruption on the forehead in the typical location as given by Hebra and from the anatomical seat of the inflammation about the hair follicle, I am inclined to class it, in view of my own examination of acne varioliformis (to be detailed later) with that disease.

Pick (Archiv. f. Dermat. u. Syph. p. 551, 1889,) makes a clinical distinction between the two affections, describing a typical case of acne varioliformis (Hebra) which Dubreuilh (l. c.) identifies, on the strength of Pick's description, as a case of hydradenitis.

Pick's anatomical examination failed to show any connection between the lesion and the sebaceous gland or hair follicles, and Dubrenilh's view of the nature of the affection is strengthened by this fact.

No microscopic examination was made in the case reported by Pick as one of acne necrotica (Boeck). From the foregoing it seems to be well established that there exists a suppurative inflammation of the sweat glands characterized clinically in its beginning by a deeply situated papule which gradually enlarges and produces an elevation of the overlying epidermis followed by suppuration or necrosis of the affected tissues, and resulting in a depressed pigmented scar. The eruption may be disseminated or grouped and occur on the face, body or both.

It may, like acne varioliformis, with which it has been confused, heal and relapse indefinitely. An attempt to find micro-organism in the diseased area has been unsuccessful, and the view has been expressed that the excretion by the coil glands of some chemical substance might be responsible for the inflammation in and about these structures. The affection described by Leucasiewicz under the name of "Folliculitis exulcerans" (Ergänzungs heft zum Archiv. f. Dermat. u. Syph. ii., 1891), Pollitzer believes to be a variety of hydradenitis after comparing the histological appearances of this affection with his own case. The occurrence of lesions on the palm of the hand, which is referred to by Leucasiewicz, would further strengthen this

view, although the colored plates which accompany his article show entirely different gross lesions.

Histology of acne varioliformis.—During the past Summer I excised a number of papules from two cases of acne varioliformis which were under my treatment.

In one of the cases, a female, aged about forty, the eruption was present on the forehead at the margin of the scalp and on the temples.

Superficially seated papules, papulo-pustules, lesions covered with dried secretion, pigmented scars and non-pigmented scars were present, showing an affection of some standing. The patient, in good health and well nourished, stated the eruption had been present for some years; the active lesions would occasionally disappear and return again. The second patient was a Hebrew, aged sixty, in whom the eruption was confined almost exclusively to the hairy scalp. The vertex was bald, produced in part by the disease, evidences of which in the presence of cicatrices existed over the bald region and also on the forehead.

The eruption was in active progress over the lateral boundaries of the scalp and behind the ears, as shown in the photograph. (Fig. 1.)

A careful observation of the papules in the early stage of their development showed that they were superficially seated in the derma and not, as in hydradenitis, in the subcutaneous tissue. The majority of the lesions were perforated by a hair.

Before the occurrence of suppuration or the destruction of the epidermis, the changes consist of a dense, round cell infiltration about the hair follicles, generally above the situation of the sebaceous glands. (Fig. 2.) In some of the sections the sebaceous glands are surrounded by the exudation, while in others they are quite free. The coil glands are normal and outside the inflammatory zone.

As the process extends the infiltrations spreads in a lateral and upward direction, involving the papillary and subpapillary areas. The cells of the outer root-sheath become disintegrated and infiltrated with exudation cells, and finally all the layers of the follicle may be invaded and destroyed by the inflammatory process.

The upper half of the hair follicle may be destroyed by the intensity of the inflammation, while below the follicle and sebaceous glands appear almost normal. (Figs. 3 and 4.) The secreting cells of the sebaceous glands resist the action of the

disease for a considerable time and present a normal appearance later than the surrounding connective tissue. The cellular infiltration in the affected area was readily stained with hæmatoxylin and carmine in marked contrast with the exudation in hydradenitis which showed early in its course a tendency to degeneration. The separation of the affected tissue *en masse* by a process of dry necrosis was not so marked a feature of the microscopic picture as in hydradenitis.

The papules from the face of the woman first mentioned were removed at an early period of their development and failed to show any tendency to early necrosis. In the scalp sections the destruction of the epidermis and underlying tissue which constitute the final stage of the process, was not sharply circumscribed, the inflammatory exudate gradually shading off into the neighboring tissue. The pathological changes in the epidermis covering the papule, which take place from below upwards, consist in a vacuolation of the rete cells with little ability to take the hæmatoxylin stain. The horny layer is sometimes found separated from the cells beneath and finally the entire epidermis disappears by process of liquefactive degeneration.

In both the scalp and face sections numerous longitudinal sections of hair follicles were met with, so that it was not difficult to detect the seat of the first changes in the affection.

Micro-organisms.—Sections taken from an early papule of the face (female) and stained by Kühne's carbolic-methylene-blue solution showed the presence of enormous numbers of staphylococci contained within the lymph vessels and free in the tissues. These organisms were especially numerous about the middle and deeper portions of the hair follicles within the external and internal root sheaths, in the connective tissue about the coil glands and in the subcutaneous connective tissue. In the papillary layer of the derma and in the older parts of the infiltration the organisms are much less numerous. Their number, distribution and appearance before the lesion had involved the epidermis rendered their etiological relationship to the disease very probable. In a secondary infection they would not be found at so early a period and probably in fewer numbers.

The distribution of the micro-organisms in question suggested that they had gained entrance to the tissues through the hair follicles, exciting a reaction in the derma after being taken up by the blood or lymph vessels.

The more frequent occurrence of the affection among those

in the lower walks of life and its localization in the majority of instances on the forehead, exposed to pressure by unclean hat bands, would lend some weight to the theory of a local infection.

Sections from the second case (male) were stained in the

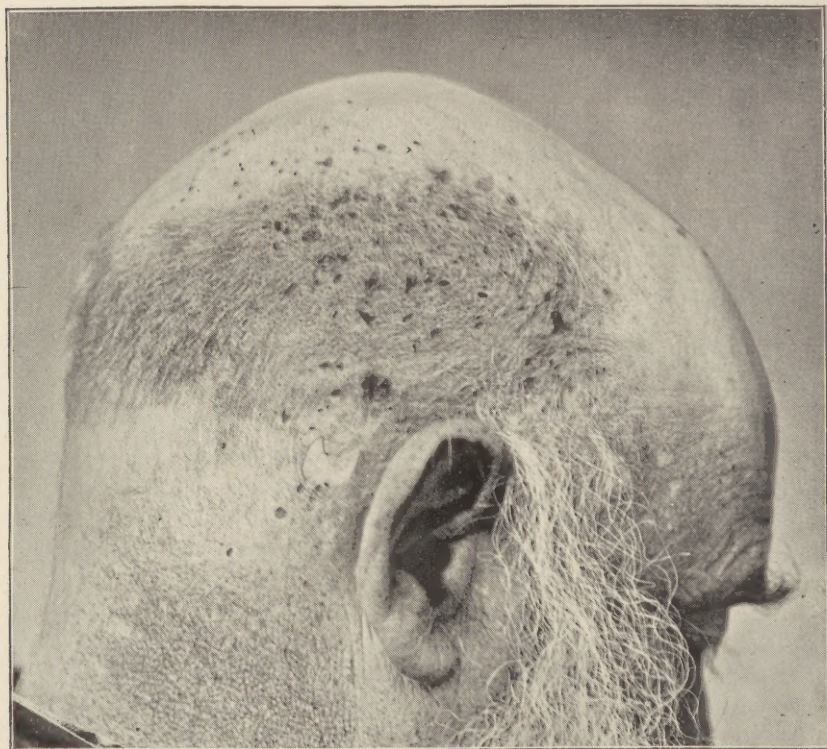


FIG. 1.

ACNE VARIOLIFORMIS OF THE SCALP.

same manner as those just mentioned and also by Gram's and other methods, but in no instance were organisms of any kind discovered.

Thinking some fault existed in the technique the procedure was repeated a number of times with a like negative result.

The lesions in this case being older it is possible that the staphylococci were taken up by the leucocytes or destroyed in

other ways, leaving only their effects, or their presence in the other case may have been purely accidental. The lesions in both cases healed rapidly under an ointment containing sulphur and naphthol.

As such close clinical resemblances exist between acne vari-



FIG. 2.

SECTION OF A RECENT PAPULE IN ACNE VARIOLIFORMIS SHOWING DENSE ROUND-CELL INFILTRATION ABOUT HAIR FOLLICLE. X 200.

oliformis and hydradenitis the penetration of the pathogenic organisms in the one case through the hair follicle and in the other through the sweat ducts might explain their microscopic differences.

In substance it may be stated that acne varioliformis (Hebra)

is an inflammation of the pilo-sebaceous system, probably microbial in origin, leading to destruction of these organs and the surrounding derma, and that Bazin was correct in naming the disease *acne pilaris*.

Touton (Verhand. der Deutsch. Dermatol. Gesellschaft, Zweiter und Dritter Congress) reported with microscopic examination a case which clinically corresponded with Boeck's *acne*



FIG 3.

AN OLDER PUSTULE FROM ACNE VARIOLIFORMIS SHOWING DESTRUCTION OF
DERMA AND EPIDERMIS. X 25.

nerotica. The eruption had existed for more than a year and was present on the face and breast. The patient was addicted to the excessive use of alcohol.

Touton found that the inflammation began about the middle and deeper portions of the hair follicle and was followed by a partial degeneration of the affected area and dry necrosis.

In the upper layers of the necrotic tissue and in the hair

follicle he found staphylococci and other micro-organisms, and in the hair itself bacilli of different dimensions.

He expresses no positive opinion in reference to the etiolog-



FIG. 4.

A MORE HIGHLY MAGNIFIED VIEW OF HAIR FOLLICLE AND SEBACEOUS GLAND FROM FIG. 3.
THE UPPER PART OF THE FOLLICLE IS DESTROYED. X 200.

ical relationship of the organisms to the disease but rather leans to the view that their presence was accidental.

Leloir and Vidal, from an imperfect examination of two old lesions of acne varioliformis (acne rodens), believed the seat of the pathological process to be about the hair follicle and sebaceous glands, their situation in the sections being outlined by embryonic cells.

The "Ulerythema Acneiforme" of Unna (International

Atlas of Rare Skin Dis. 1) which is classed by Besnier with this acne group, differs from acne varioliformis by the absence of central necrosis, suppuration and ulceration, by the presence of cornedones and the form of cicatricial atrophy which does not suggest small-pox scars (Unna).¹

¹ Kaposi in the last edition of his book and also in Archiv. für Dermat. u. Syph. Heft. 1, 1894, has described several new varieties of acne (Folliculitis), one of which, "Acne necroticans et exulcerans serpiginosi nasi," presents some points of similarity with Leucasiwicz's folliculitis exulcerans. In this case the papules began as circumscribed infiltrations in the deeper parts of the corium and were accompanied with numerous giant cells.

